

**FACT SHEET FOR STATE WASTE DISCHARGE PERMIT ST 6127
CITY OF PORT TOWNSEND BIOSOLIDS COMPOSTING FACILITY**

SUMMARY

The Port Townsend Biosolids facility was built to remedy problems the City of Port Townsend (City) had with sewage sludge disposal. Prior to the creation of this facility, the city was disposing of sludge in the local landfill without treatment. The facility is located within the boundary of this old landfill which is now a transfer station, recycling and yard waste collection center. The biosolids facility began operation in 1993 with a temporary permit issued by the Department of Ecology (Department). The facility accepts sludge from the City and sludge from septic haulers. The facility then dewateres the sludge and mixes the solids with yard waste to make compost. The liquid portion drained from the sludge is treated in a small Sequencing Batch Reactor (SBR), chlorinated, then sent to the lower holding pond for chlorine contact time, and is then sent to a wetland and finally disposed to ground through infiltration basins.

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INTRODUCTION

This fact sheet is a companion document to the draft State Waste Discharge Permit No. ST 6127. The Department is proposing to issue this permit, which will allow discharge of wastewater to waters of the state of Washington. This fact sheet explains the nature of the proposed discharge, the Department's decisions on limiting the pollutants in the wastewater, and the regulatory and technical bases for those decisions.

Washington State law [Revised Code of Washington (RCW) 90.48.080 and 90.48.162] requires that a permit be issued before discharge of wastewater to waters of the state is allowed. Regulations adopted by the state include procedures for issuing permits [Chapter 173-216 Washington Administrative Code (WAC)], technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC) and water quality criteria for ground waters (Chapter 173-200 WAC). They also establish the basis for effluent limitations and other requirements which are to be included in the permit.

This fact sheet and draft permit are available for review by interested persons as described in Appendix A--Public Involvement Information.

The fact sheet and draft permit have been reviewed by the Southwest Regional Office of the Washington State Department of Ecology and by the Permittee. Errors and omissions identified in these reviews have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Changes to the permit will be addressed in Appendix D--Response to Comments

<u>GENERAL INFORMATION</u>	
Applicant	City of Port Townsend, Department of Public Works
Facility Name and Address	City of Port Townsend Biosolids Composting Facility 603 County Landfill Road
Type of Treatment System	Sequencing Batch Reactor with wetlands and rapid infiltration
Discharge Location	Latitude: 48° 06' 08" N Longitude: 122° 50' 05" W.
Legal Description of Application Area	SE ¼ SW ¼ Section 8, township 30N, range 1W
Contact at Facility	Name: John Merchant, Operations Manager Telephone (360) 379-4432
Responsible Official	Name: Kenneth Clow, P.E. Title: Public Works Director Address: 181 Quincy Street, Suite 301 Port Townsend, WA 98368 Telephone #: (360) 379-5090 FAX #: (360) 385-7675

BACKGROUND INFORMATION

DESCRIPTION OF THE COLLECTION AND TREATMENT SYSTEM

HISTORY

Prior to the creation of the biosolids facility, the Port Townsend treatment plant sludge and local septic tank sludge were disposed of in the old landfill. With the closing of the landfill and more stringent laws regarding the disposal of sludge, the City and Jefferson County chose to create compost as a sellable product.

The Port Townsend biosolids and compost facility is located at the Jefferson County solid waste transfer station, formerly the old Jefferson County Landfill. The facility receives liquid waste from septic waste haulers and prescreened, dewatered sludge solids from the Port Townsend Sewage Treatment Plant. The facility produces a compost product from the dewatered sewage solids and yard waste, however, this permit is concerned primarily with the treatment and disposal of the liquid portion left over from that waste. The facility has been in operation since 1993. A temporary permit was issued on August 26, 1993. The permit was modified on July 10, 1997, to include more comprehensive testing of effluent, wetland and groundwater.

COLLECTION SYSTEM STATUS

All waste treated at this facility is hauled to the site. There is no piping at this time connecting the facility to the town. The facility is located on a large concrete slab where trucks enter, compost production takes place and finished compost is stored. The area immediately adjacent to where the septic haulers unload has a storm drain that is directed into the holding tanks for the septic waste storage. Stormwater from where compost is created (under and between two pole buildings) is directed to the Sequencing Batch Reactor (SBR). The stormwater from the rest of the facility slab is directed to a holding pond outside of the compost production area. The stormwater from the holding pond is then pumped to a wetland system that also receives the final wastewater from the main sewage treatment system.

TREATMENT PROCESSES

There are two sources of sludge that enter the facility for treatment: the dewatered sludge from the Port Townsend Sewage Treatment Plant, and "wet" sludge from septic haulers throughout the county. The dewatered sludge goes directly into the compost process. The wet sludge enters a holding tank and is dewatered on a wedge-wire screen. The liquid from the dewatered sludge enters a small SBR that cycles once per day. The SBR has an active mixed phase and a quiescent phase where the liquid clarifies. The clarified liquid from the SBR is pumped to a wet well for chlorination, held in a stormwater pond and pumped to wetlands before being discharged to infiltration basins. Flow is calculated by measuring the levels in the SBR before and after the effluent is pumped out.

The plant is classified as a Class II plant, and therefore, requires a Group II classified operator. There are currently two Group II operators that staff the plant five days per week from 7:00 a.m. to 3:30 p.m.

There are currently no plans to expand the facility. The application for this new permit contained a request for increasing the capacity of the plant. However, the amount of septage received from independent haulers has dropped off in the last year because the haulers have been taking their septage waste to Mason County. Therefore, the applicant dropped its request for increasing flow. The maximum daily flow for the last two years has come close to the design maximum on a regular basis, however, the

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average flow has been well below the average design flow. The treatment works do not appear to be overloaded at this time.

INFILTRATION BASIN

After the effluent has passed through the wetlands, the effluent is discharged to two infiltration basins that allow rapid infiltration. The infiltration basins comprise 15,000 square feet and were designed to allow 0.5 inches of infiltration per hour. At the time of the field visit in April 2002, the City was attempting to grow highbred poplar trees in the basins with limited success. The Permittee added a distribution pipe to one of the infiltration basins to improve the spread of effluent across the basin. The system operates every month of the year including the winter months. Because the facility is located within the Old Jefferson County Landfill, public access to the site is controlled. There is a large buffer between any portion of the biosolids facility and the boundary of the landfill. The infiltration basins and wetlands are within the biosolids facility. Therefore there is a large distance (500 to 1,000 feet) to any neighboring property or domestic water supply well.

RESIDUAL SOLIDS

The treatment facility removes solids during the treatment of the wastewater at the headworks (grit and screenings), and sludge solids from the SBR (waste activated sludge) are pumped back to the septage holding tanks after the clarification process. Those solids removed become part of the compost. Grit, rags, scum, and screenings are drained and disposed of as solid waste at the county solid-waste transfer station.

GROUND WATER

The geology of the site described here comes in part from an April 1993 report by CH₂M Hill Northwest, Inc. *Supplemental Geotechnical Data Report for Groundwater Monitoring Well*. This report provided the technical information on the one monitoring well for the biosolids facility and included information on the three wells for monitoring conditions below the old landfill.

The biosolids site is located on glacial deposits of the Pleistocene era. The monitoring well (MW-1-93) is located approximately 150 feet to the northeast of the infiltration basins. The well was completed to a depth of 129 feet below the surface. The soil conditions from this well match closely to the conditions found in other borings within the old landfill site. Those borings and well logs show there was loose sand and gravel to a depth of 125 feet. The intervening sand and gravel material is believed to be porous but was not water bearing.

Below 125 feet there was a silt and clay layer that appears to act as an aquitard. The aquitard appears to be 80 feet to 30 feet thick. Below the aquitard is a sand and gravel water bearing zone that is used as the regional aquifer. The water in the regional aquifer is believed to travel to the northeast.

The facility monitoring well MW-1-93 was completed down to the top of the aquitard. There was no water above the aquitard at the time of development, however, the Permittee has been able to sample the well on a quarterly basis and has not had problems obtaining a water sample. Because there is very little water above the aquitard, and because there is only one well, there is no documentation of groundwater flow direction above the aquitard, however, the sands and gravels in the upper 120 feet appears to be very uniform.

The entire biosolids facility site is located southeast of where a final landfill cell was developed and completed. There does not appear to have been any solid waste disposal within the footprint of the biosolids facility including the wetlands and infiltration basins.

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PERMIT STATUS

The previous permit for this facility was issued on August 26, 1993, as a temporary permit. That temporary permit was modified on July 10, 1997.

An application for a new permit was submitted to the Department on July 23, 1998.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility last received an inspection on April 9, 2002.

During the history of the previous permit, the Permittee has not remained in total compliance based on Discharge Monitoring Reports (DMRs) and other reports submitted to the Department and inspections conducted by the Department.

A modification to the original temporary permit was issued in July 1997 due to a petition to modify the monitoring schedule from the City of Port Townsend on July 26, 1995, and again on June 11, 1997.

On June 4, 1999, the Department issued a letter pointing out that Port Townsend Biosolids had difficulty meeting limits for nitrate discharges. The Permittee had been exceeding their permit limit of 10 mg/L for nitrate in the ground water monitoring well and had difficulty meeting the design criteria of 30 mg/L for total nitrogen in the SBR. The wetland effluent was supposed to meet 10 mg/L total nitrogen and the Permittee was having difficulty meeting that limit. The Department recommended that the Permittee operate the SBR to achieve nitrification and denitrification and to increase the testing for TKN and nitrate daily in the SBR, wetlands, and monitoring well. The Permittee did implement nitrification-denitrification to reduce nitrates. A corresponding drop in nitrates was seen in the monitoring well. For the first two years of operation, nitrates in the monitoring well were below detection (below 1 mg/L). Nitrate values in the well increased to 15 to 20 mg/L until 1999 when the nitrate values in the well began to drop. See figure 1 in Appendix C.

WASTEWATER CHARACTERIZATION

The concentration of pollutants in the discharge was reported in the DMRs. The proposed wastewater discharge from the SBR prior to the wetland or land application is characterized in Table 1a. The wastewater discharged from the wetlands is characterized in Table 1b. The character of the groundwater found in the monitoring well is characterized in Table 1c.

Table 1a: Port Townsend Biosolids DMR data from February 2000 – January 2002

SBR Effluent Data				
Parameter	Design Criteria	Limit	Average	95th percentile unless specified as max or min
Flow-Avg. Monthly	4000 gpd	4000 gpd	2084 gpd	
Flow-Max. Daily	6200 gpd	6200 gpd	5932 gpd	6108 max
BOD	30 mg/L	30 mg/L	4.6 mg/L	13.0 mg/L
TSS	30 mg/L	30 mg/L	4.9 mg/L	13.6 mg/L
pH		6.5 – 8.5	7.3	6.9 min – 7.7

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				max
Nitrate		10 mg/L	3.6 mg/L	22.5 mg/L
TKN			5.2 mg/L	8.3 mg/L
Ammonia		1 mg/L	0.8 mg/L	0.43 mg/L

Table 1b: Wetland data from February 2000 – January 2002

Wetland Effluent Data		
Parameter	Average	95th percentile unless specified as max or min
BOD	6.9	12.6
TSS	9.7	17.1
pH	7.3	6.5 min – 7.8 max
Nitrate	1.1 mg/L	4.2 mg/L
TKN	5.5 mg/L	8.7 mg/L
Ammonia	1.1 mg/L	3.2 mg/L

Table 1c: Monitoring Well Data from February 2000 – January 2002

Monitoring Well Data (MW-1-93)			
Parameter	Limit	Average	95th percentile unless specified as max or min
Fecal coliform		<1 cfu/100 ml or undetected	
Total coliform	1 cfu/100 ml	Not measured	
Nitrate	10 mg/L	3.2 mg/L	5.8 mg/L
TKN		1.4 mg/L	2.8 mg/L
Ammonia		0.01 mg/L	0.01 mg/L
Iron	0.3 mg/L	2.4 mg/L	3.7 mg/L
Manganese	0.05 mg/L	0.21 mg/L	0.37 mg/L
Barium	1.0 mg/L	0.10 mg/L	0.16 mg/L
Lead	0.05 mg/L	0.002 mg/L	0.002 mg/L

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Chromium	0.05 mg/L	0.006 mg/L	0.011 mg/L
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No upgradient monitoring wells were installed. The point of compliance for discharge to ground is generally in the monitoring well immediately downgradient from the discharge location. Additional monitoring limits may be described in a permit to establish final limits at the point of compliance. In this case the monitoring well is the point of compliance for those limits described in the above table "Monitoring Well Data." The monitoring well did appear to respond to a loading and reduction of nitrates. (See figure 1 in Appendix C.)

There were also monitoring limits described in the above table "SBR data." Those limits include flow, BOD, TSS, pH, nitrate, and ammonia. Design flow is a value that if exceeded may disrupt the ability of the plant to treat other parameters. Flow did not exceed the design capacity at any time. BOD and TSS are technology limits that are based on the ability of a plant of this type to be able to meet these limits and were also kept well below the design and technology limits.

The limit for pH is water quality based and likewise was kept well within limits. The previous permit limited nitrate and ammonia effluent from the SBR and had a nitrate limit in the groundwater. The nitrate limit was 10 mg/L for both the SBR effluent and the groundwater. The monitoring data shows that nitrate had a 95th percentile level of 22.5 mg/L which is well above the 10 mg/L limit. Nitrate levels in the monitoring well were below the limit in the last two years, but were above what you would expect to find in ground water. As noted above, nitrates in the groundwater were above the limit in mid-1990s.

Several metals were monitored in the groundwater. The high prevalence of iron and manganese in the monitoring well has not been determined to be from a human source and may represent a high background level of these parameters. It is possible the high iron and manganese come from the landfill before operation of the biosolids facility. However, a background value for the biosolids facility may be determined by examining the period of record before increased nitrate values were seen (before 1996).

No other metals monitored in the ground water showed average data values above the ground water quality standards. Figures 2 and 3 in Appendix A show the iron and manganese values in the groundwater from 1995 to 2002. A single increase in the iron or manganese values can be seen at the same time as an increase in nitrates. These increased values may be outliers. No other increase or decrease is noted. What is notable is that iron and manganese have shown high values from beginning. Therefore, it appears that iron and manganese is not a problem of the facility operation. See *Ground Water Quality-Based Effluent Limitations* below for more analysis of iron and manganese.

No other metals show values of concern and all those monitored remain below the ground water quality criteria.

SEPA COMPLIANCE

No construction, expansion, or change to the system that would trigger State Environmental Policy Act (SEPA) has occurred. SEPA compliance is, therefore, not required for this permit.

PROPOSED PERMIT LIMITATIONS

State regulations require that limitations set forth in a waste discharge permit must be either technology- or water quality-based. Wastewater must be treated using all known, available, and reasonable treatment (AKART) and not pollute the waters of the state. The minimum requirements to demonstrate compliance with the AKART standard are derived from the *Water Reclamation and Reuse Standards*, the *Design Criteria for Municipal Wastewater Land Treatment*, and Chapter 173-221 WAC.

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The permit also includes limitations on the quantity and quality of the wastewater applied to the infiltration basin that have been determined to protect the quality of the ground water. The approved engineering report includes specific design criteria for this facility. Water quality-based limitations are based upon compliance with the Ground Water Quality Standards (Chapter 173-200 WAC).

The more stringent of the water quality-based or technology-based limits are applied to each of the parameters of concern. Each of these types of limits is described in more detail below.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

All waste discharge permits issued by the Department must specify conditions requiring available and reasonable methods of prevention, control, and treatment of discharges to waters of the state (WAC 173-216-110). The following permit limitations are necessary to satisfy the requirement for AKART:

Table 2: Technology-Based Effluent Limitations

Parameter	Monthly Average	Weekly Average
BOD ₅	30.0 mg/L, 1.0 lbs/day	45.0 mg/L, 1.5 lbs/day
TSS	30.0 mg/L, 1.0 lbs/day	45.0 mg/L, 1.5 lbs/day
Fecal Coliform	200 col./100 ml	400 col./100 ml
pH	Shall not be outside the range 6 to 9	

The total BOD and TSS monthly effluent loadings (lbs/day) were calculated as the maximum monthly design flow (0.004 mgd) x concentration limit (30 mg/L) x 8.34 (conversion factor) = mass limit 1.0 lbs/day.

The weekly average effluent mass loading is calculated as 1.5 x monthly loading (1.0 lbs/day) = 1.5 lbs/day.

GROUND WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's ground waters including the protection of human health, WAC 173-200-100 states that waste discharge permits shall be conditioned in such a manner as to authorize only activities that will not cause violations of the Ground Water Quality Standards. Drinking water is the beneficial use generally requiring the highest quality of ground water. Providing protection to the level of drinking water standards will protect a great variety of existing and future beneficial uses.

Applicable ground water criteria as defined in Chapter 173-200 WAC and in RCW 90.48.520 for this discharge include the following:

Table 3: Ground Water Quality Criteria

Total Coliform Bacteria	1 Colony/ 100 ml
Total Dissolved Solids	500 mg/L
Chloride	250 mg/L
Sulfate	250 mg/L

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Nitrate	10 mg/L
pH	6.5 to 8.5 standard units
Manganese	0.05 mg/L
Total Iron	0.3 mg/L
Toxics	No toxics in toxic amounts

The Department has reviewed existing records and is unable in all cases to determine if background ground water quality is either higher or lower than the criteria given in Chapter 173-200 WAC; therefore, the Department will not use ground water criteria but will require monitoring in the proposed permit. The discharges authorized by this proposed permit are not expected to interfere with beneficial uses.

Background conditions for iron and manganese were estimated by comparing the metals values to nitrates before January 1996, after which both nitrates and metals values increased. The increase is presumed to be due to the influence of the discharge. Nitrate values before January 1996 were essentially below detection. The iron and manganese values during this period had a 95th percentile value of 3.8 mg/L for iron and 0.39 for manganese. The iron and manganese 95th percentile values for the last two years was 3.7 mg/L and 0.37 mg/L respectively, and therefore, meet the estimated earlier levels. (see table 1c).

COMPARISON OF LIMITATIONS WITH THE EXISTING PERMIT ISSUED AUGUST 26, 1993

Table 4: Comparison of Previous and New Limits in Effluent

Parameter	Existing Limits	Proposed Limits
Flow	4000 gal/day (max month) 6200 gal/day (max day)	4000 gal/day (max month) 6200 gal/day (max day)
BOD ₅	30 mg/L	30 mg/L (Avg monthly) 1 lbs/day (Avg monthly) 45 mg/L (Avg weekly) 1.5 lbs/day (Avg weekly)
TSS	30 mg/L	30 mg/L (Avg monthly) 1 lbs/day (Avg monthly) 45 mg/L (Avg weekly) 1.5 lbs/day (Avg weekly)
Fecal Coliform Bacteria		200 col./100 ml (Avg monthly) 400 col./100 ml (Avg monthly)
pH	6.5-8.5 Standard units	6.5-8.5 standard units
Nitrate	10 mg/L	10 mg/L
Ammonia	1 mg/L	1 mg/L (Avg monthly)

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Parameter	Existing Limits	Proposed Limits
Total residual chlorine		0.5 mg/L (Daily Max)
^a The average monthly effluent limitation is defined as the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.		
^b The maximum daily effluent limitation is defined as the highest allowable daily discharge. The daily discharge means the discharge of a pollutant measured during a calendar day. For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For other units of measurement, the daily discharge is the average measurement of the pollutant over the day.		
^c N/A means not applicable		

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are specified to verify that the treatment process is functioning correctly, that ground water criteria are not violated, and that effluent limitations are being achieved (WAC 173-216-110).

INFLUENT AND EFFLUENT MONITORING

The monitoring and testing schedule is detailed in the proposed permit under Condition S2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

Monitoring for nitrate, TKN, and ammonia is being required to further characterize the effluent from the SBR and the wetlands. These pollutants could have a significant impact on the quality of the ground water.

GROUND WATER MONITORING

The monitoring of ground water at the site is required in accordance with the Ground Water Quality Standards, Chapter 173-200 WAC. The Department has determined that this discharge has a potential to pollute the ground water. Therefore, the Permittee is required to evaluate the impacts on ground water quality. Monitoring of the ground water at the site boundaries and within the site is an integral component of such an evaluation.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 273-216-110).

FACILITY LOADING

The design criteria for this treatment facility are taken from the Addendum to the engineering report dated May 25, 1993 prepared by CH2M Hill and are as follows:

Monthly average flow (max. month):	4000 gal/day
Daily maximum flow:	6200 gal/day

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Because the influent comes from a variety of sources, e.g., septic tanks, porta-johns, etc., the BOD and TSS values vary widely. No design parameters for BOD and TSS concentration were given. Influent BOD and TSS concentration is not measured. However based on a design load of 17 lbs/day BOD and 16 lbs/day TSS and the design plant flow of 4000 gal/day, the concentrations would need to be below approximately 510 mg/L BOD and 480 mg/L TSS in order to meet the influent design limits.

The permit requires the Permittee to maintain adequate capacity to treat the flows and waste loading to the treatment plant (WAC 173-216-110[4]). The Permittee is required to submit an engineering report when the plant reaches 85 percent of its flow or loading capacity. For significant new discharges, the permit requires a new application and an engineering report (WAC 173-216-110[5]). The Permittee will be required to reassess its loading capacity near the end of the five year permit cycle.

Because the Permittee is required to keep nitrate values in the effluent and ground water below the criterion, a year round crop and its irrigation and crop management plan is impractical. The facility was not design for crop irrigation which would require long term effluent storage and more area for a viable crop that could take-up nutrients. Therefore, the Permittee's attempt at growing high-bred Cottonwood trees is not necessary and may be a hindrance in maintaining the surface of the infiltration basins. In order for a nitrogen reducing crop to work, the mature crop would need to be removed to remove the nitrogen from the system. The Permittee does not appear to have such a plan in place. The Permittee should either develop an irrigation and crop management plan for review, which is not recommended, or scrap the plans for a nitrogen removing crop and simply cover basin management in the updated O&M Manual noted below.

OPERATIONS AND MAINTENANCE

The proposed permit contains Condition S.5 as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment. The Permittee will be required to update the O& M manual to include any changes to the system, e.g., nitrification-denitrification operational changes, preferred wetland discharge cycle, and infiltration basin cover crop maintenance.

RESIDUAL SOLIDS HANDLING

To prevent water pollution the Permittee is required in permit Condition S6 to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and State Water Quality Standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503. The disposal of other solid waste is under the jurisdiction of the local health district.

Requirements for monitoring sewage sludge and recordkeeping are included in the statewide permit for biosolids handling. This information will be used by the Department to develop or update local limits and is also required under 40 CFR 503.

PRETREATMENT

WAC 173-216-110 requires that the list of prohibitions in WAC 173-216-060 be included in the permit.

Although the City of Port Townsend has a pretreatment program for their main sewage treatment system, the City should also be aware of waste from septic tanks that serve commercial and industrial users, and

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porta-johns that may have higher metals or chemicals. The City should be working with the septic haulers to reduce the risk that the facility accepts waste that may upset or pass through the system.

Federal pretreatment requirements in 40 CFR 403 and Sections 307(b) and 308 of the Clean Water Act apply to this facility. Therefore, notification to the Department is required when pretreatment prohibitions are violated and when new sources of commercial or industrial wastewater discharge are added to its system.

GENERAL CONDITIONS

General Conditions are based directly on state laws and regulations and have been standardized for all industrial waste discharge to ground water permits issued by the Department.

Condition G1 requires responsible officials or their designated representatives to sign submittals to the Department. Condition G2 requires the Permittee to allow the Department to access the treatment system, production facility, and records related to the permit. Condition G3 specifies conditions for modifying, suspending or terminating the permit. Condition G4 requires the Permittee to apply to the Department prior to increasing or varying the discharge from the levels stated in the permit application. Condition G5 requires the Permittee to submit written notice of significant increases in the amount or nature of discharges (typically new industrial discharges) into the sewer system tributary to the permitted facility. Condition G6 requires the Permittee to construct, modify, and operate the permitted facility in accordance with approved engineering documents. Condition G7 prohibits the Permittee from using the permit as a basis for violating any laws, statutes or regulations. Condition G8 requires application for permit renewal 60 days prior to the expiration of the permit. Condition G9 requires the payment of permit fees. Condition G10 describes the penalties for violating permit conditions.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, and to protect human health and the beneficial uses of waters of the state of Washington. The Department proposes that the permit be issued for five years.

REFERENCES FOR TEXT AND APPENDICES

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Washington State University, November, 1981. Laboratory Procedures - Soil Testing Laboratory. 38 pp.

APPENDICES

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page one of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on September 5, 1999, and September 12, 1999, in the *Port Townsend Leader* and the *Peninsula Daily News* to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department will publish a Public Notice of Draft (PNOD) on October 9, 2002, in the *Port Townsend Leader* to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Municipal Permit Administrator
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98404-7775

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the 30-day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-216-100). Public notice regarding any hearing will be circulated at least 30 days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing.

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within 30 days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (360) 407-6554, or by writing to the address listed above.

This permit was written by Eric Schlorff.

APPENDIX B--GLOSSARY

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation--The average of the measured values obtained over a calendar month's time.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD₅--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD₅ is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of the collection or treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring --Uninterrupted, unless otherwise noted in the permit.

Distribution Uniformity--The uniformity of infiltration (or application in the case of sprinkle or trickle irrigation) throughout the field expressed as a percent relating to the average depth infiltrated in the lowest one-quarter of the area to the average depth of water infiltrated.

Engineering Report--A document, signed by a professional licensed engineer, which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Soil Scientist--An individual who is registered as a Certified or Registered Professional Soil Scientist or as a Certified Professional Soil Specialist by the American Registry of Certified Professionals in Agronomy, Crops, and Soils or by the National Society of Consulting Scientists or who has the credentials for membership. Minimum requirements for eligibility are: possession of a baccalaureate, masters, or doctorate degree from a U.S. or Canadian institution with a minimum of 30 semester hours or 45 quarter hours professional core courses in agronomy, crops or soils, and have 5,3,or 1 years, respectively, of professional experience working in the area of agronomy, crops, or soils.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

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Total Coliform Bacteria--A microbiological test which detects and enumerates the total coliform group of bacteria in water samples.

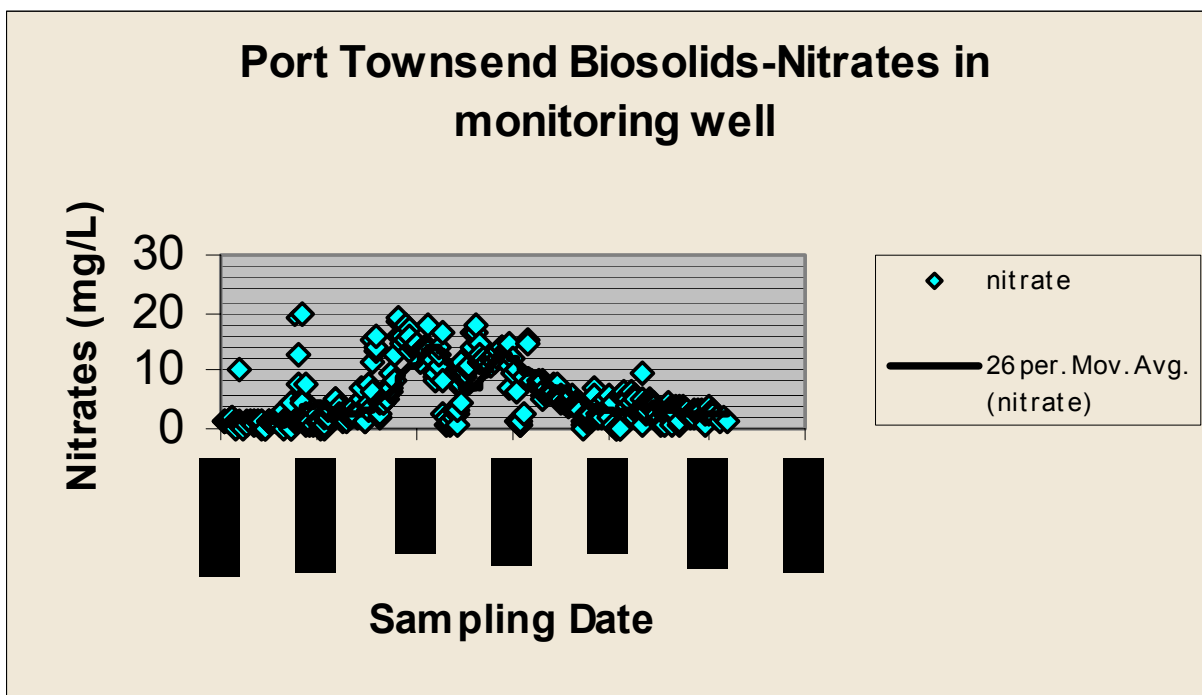
Total Dissolved Solids--That portion of total solids in water or wastewater that passes through a specific filter.

Total Suspended Solids (TSS)--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Water Quality-based Effluent Limit--A limit on the concentration of an effluent parameter that is intended to prevent pollution of the receiving water.

APPENDIX C--TECHNICAL CALCULATIONS

Figure 1: Nitrates in Monitoring Well



From startup in 1993 until November 1995, most of the nitrate values were reported below detection level of 1 mg/L. A value of 1 mg/L was used when nitrates were reported below detection. Nitrification—denitrification was implemented in 1998 and 1999. Both events appear in Figure 1.

Figure 2: Iron in monitoring well

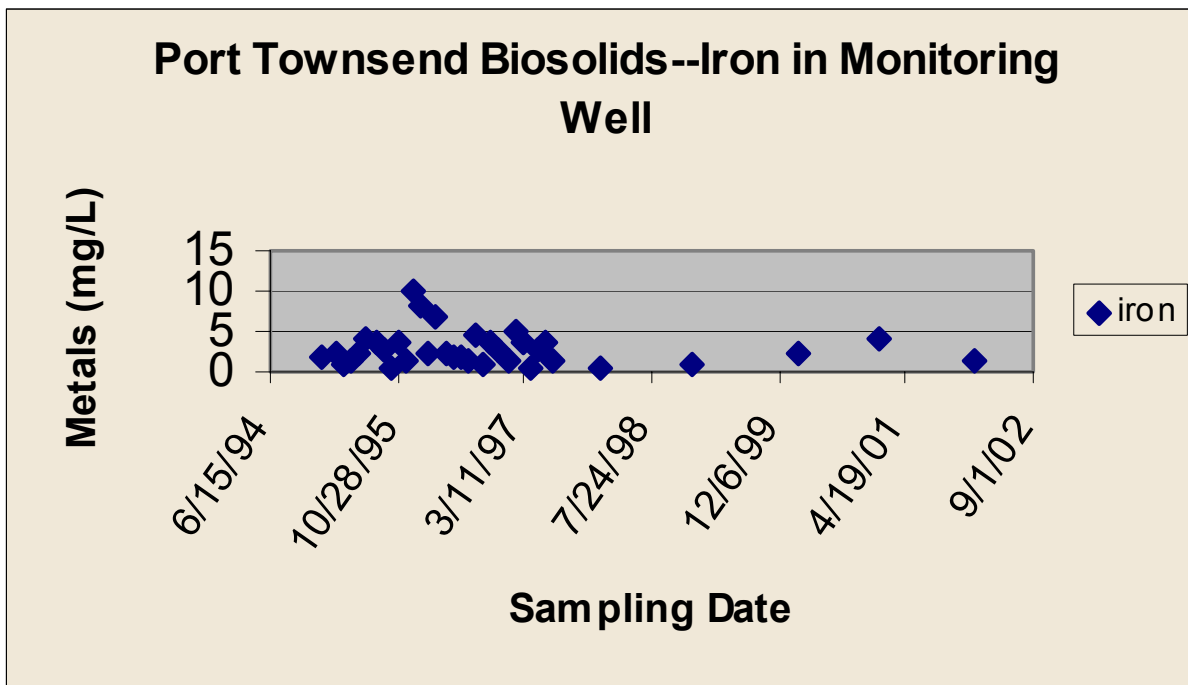
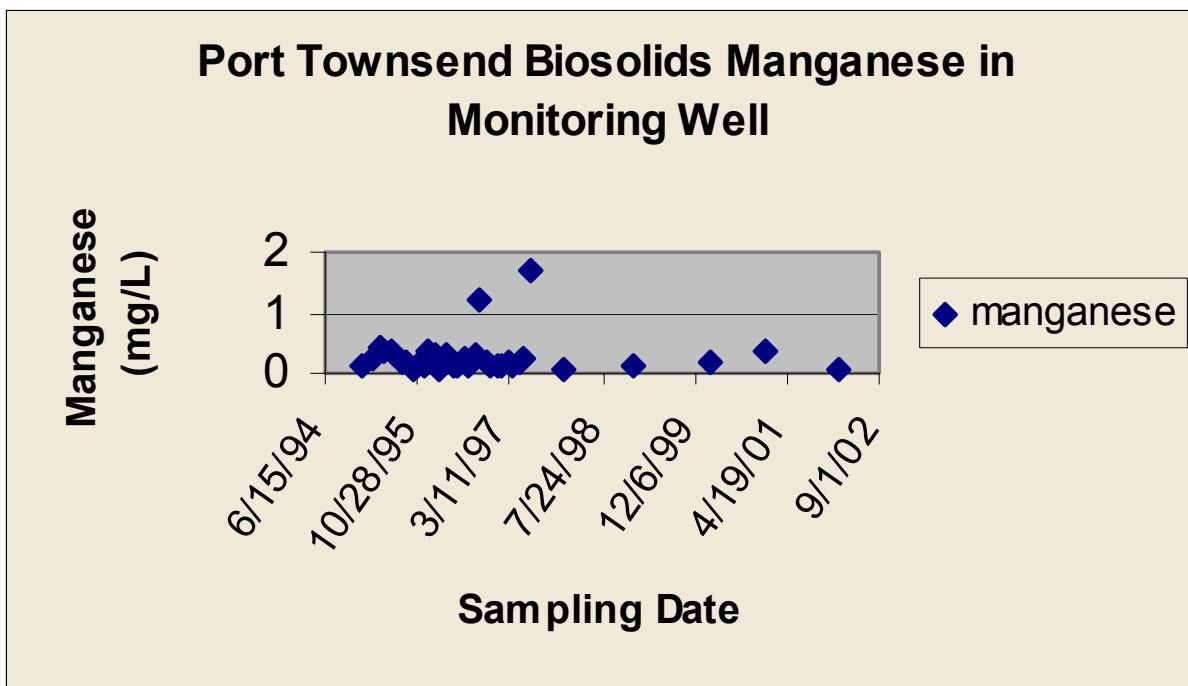
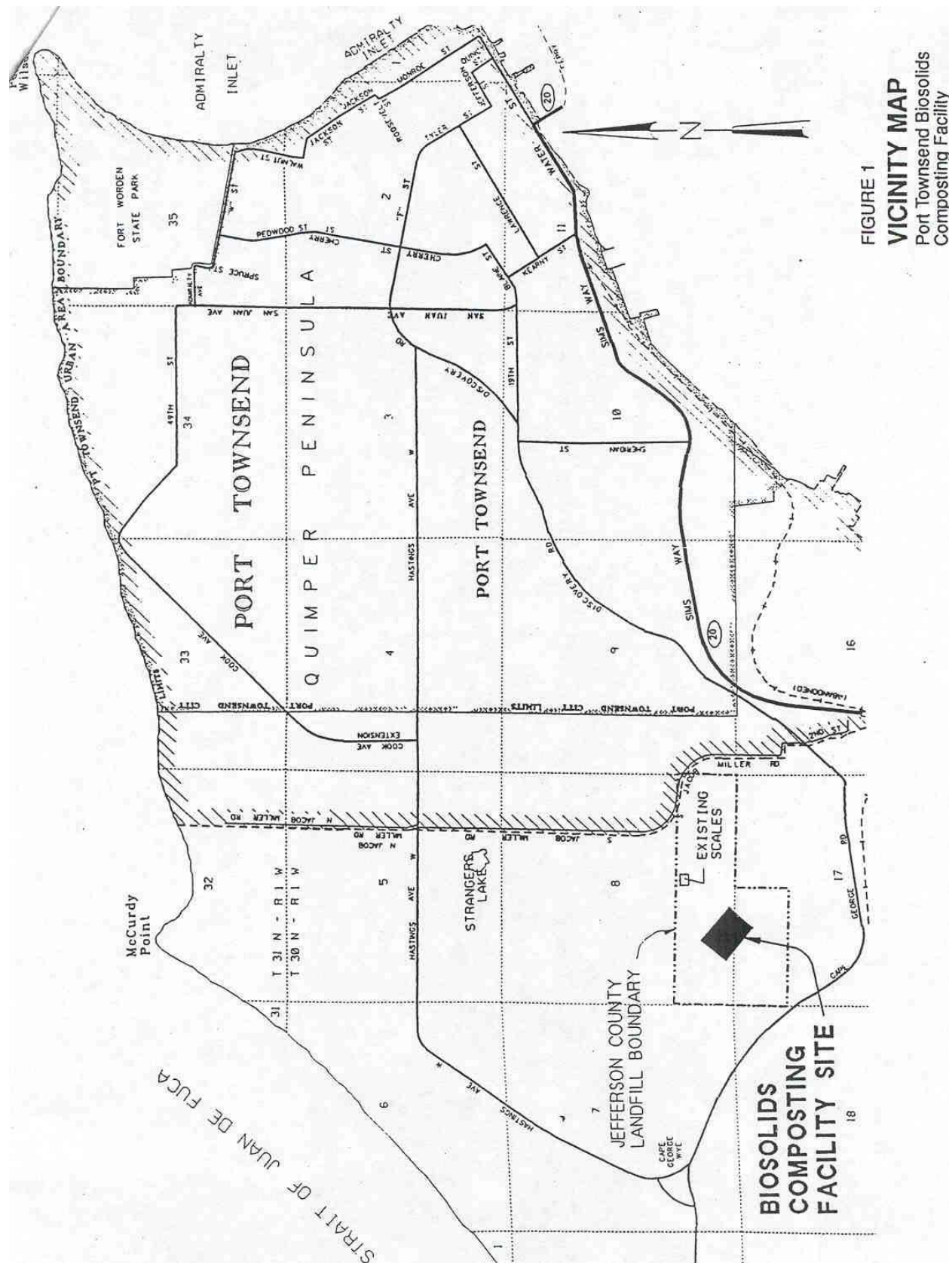


Figure 3: Manganese in monitoring well.



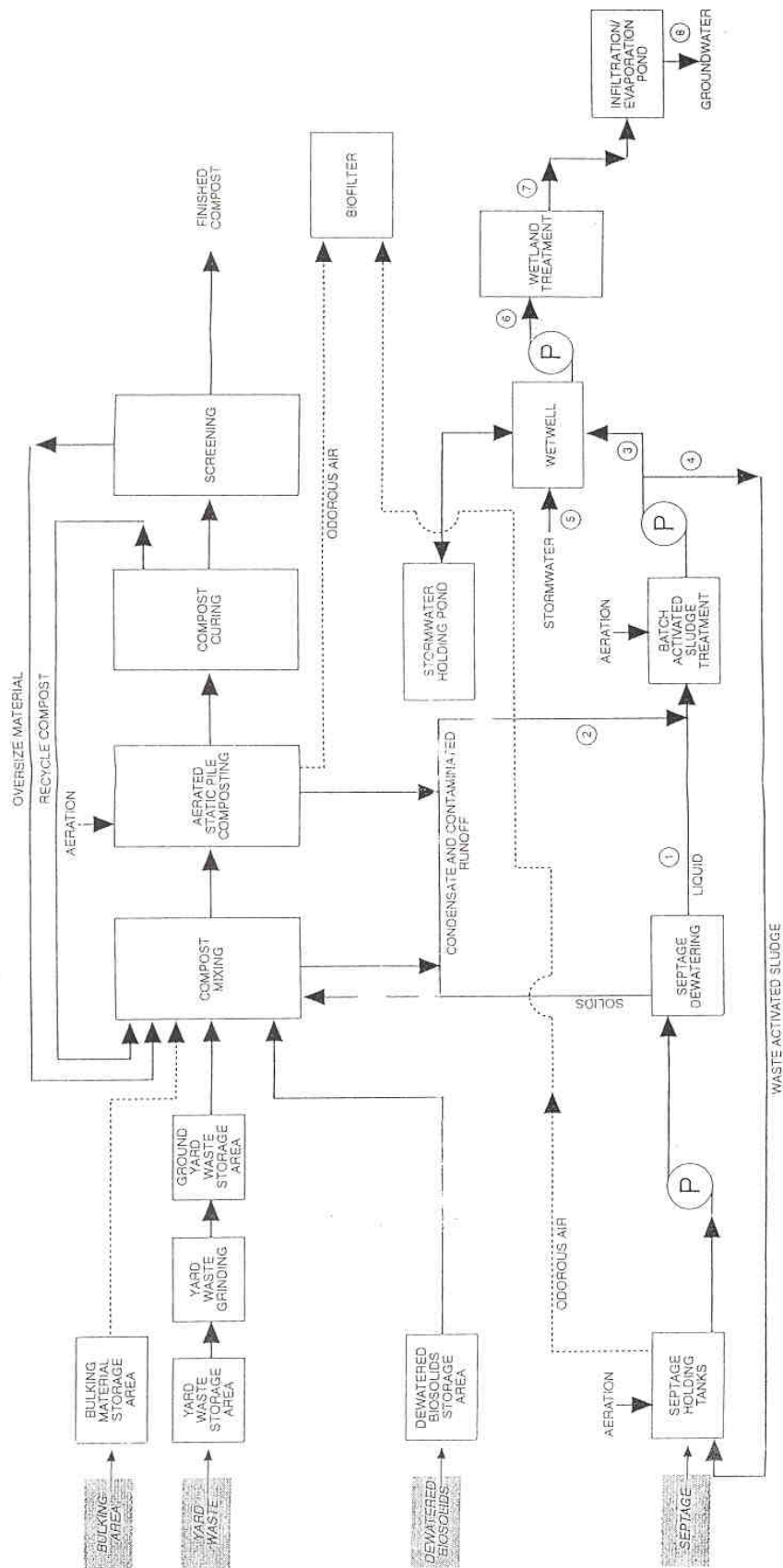
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APPENDIX D--RESPONSE TO COMMENTS

Comments from the City of Port Townsend to Public Notice Draft of Permit No. WA0037290 and responses from the Department of Ecology.

Comments received October 16, 2002.

These were the only public comments received on the draft permit.

Comment 1:

On page 4 of 16, the Effluent Limitations table indicates the compliance point for Fecal Coliform being at the wetland influent. At this point of compliance, we are not receiving any credit for the treatment that is being provided by the wetlands and most importantly the infiltration basins themselves. I would request that the point of compliance remain at the monitoring well for this parameter and continue to be set at 1 CFU/100 ml as it is currently.

Response:

The Department does not agree with changing the location of fecal coliform monitoring. The monitoring of fecal coliform at the wetland influent measures the effectiveness in the chlorine disinfection, which is supposed to take place in the wet well and holding pond. There is certainly further treatment that may take place in the wetlands and infiltration basins, however, measuring this in the monitoring well would be too late for effective treatment. Further contamination of fecal coliform by water fowl may also take place in the wetland.

Comment 2:

In addition, with the ammonia point of compliance (wetland effluent) as you have know, we would not be able to consistently meet the ammonia level of one mg/L. You also show this fact on page 5 of the fact sheets under Wetland Effluent Data. I would like to request that the point of compliance for ammonia to be at the SBR Effluent in which we have control of what comes out of it and change the frequency on page 5 of 15 for ammonia to be 2/month in the SBR Effluent. The wetlands do produce ammonia because of the natural processes that go on in the wetlands. I have included the latest data that I have compiled for your information that shows that we have not been consistently below this level out of the wetlands. I am okay with the rest of the parameters.

Response:

The Department agrees to change the ammonia point of compliance to the SBR effluent from the wetland effluent and also to change the monitoring in the SBR effluent from 1/month to 2/month. However, the Permittee will need to continue monitoring the ammonia in the wetland effluent to assess whether algae or other natural decay processes create a problem. It is the responsibility of the Permittee to manage the wetlands to minimize problems.

Comment 3:

On page 5 of 15, for the pH parameter you indicate a frequency of 5/week. I would like to request that this be changed to 2/month to correspond with the frequency for the BOD & TSS

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sampling. We have not had a problem with this parameter out of the SBR Effluent as shown in the attached data and shown on page 4 in the fact sheets as well.

Response:

The minimum sampling requirement for pH in this type of facility is daily sampling. Because pH is a parameter that must be watched carefully and is very easy to monitor, the Department requires that sampling frequency remain 5/week.

Comment 4:

On page 6 of 15, I would like to request that the Fecal Coliform parameter not be the Wetland Influent as shown in the Wetland Effluent Monitoring table but be at the Monitoring Well as requested in item 1 above and shown in the Ground Water Monitoring table on this same page.

Response:

As noted above under item #1, the Department does not agree and will, therefore, keep the monitoring of fecal coliform at the wetland influent.

Comment 5:

The following items in the fact sheet document:

1. On page 1, change the responsible official to be: Kenneth Clow, P.E.
Public Works Director
181 Quincy Street, Suite 301
Port Townsend, WA 98368
Telephone #: (360) 379-5090
FAX #: (360) 385-7675
2. On page 3, Under Infiltration Basin, second sentence, please change the 1,500 square feet to be 15,000 square feet. In addition, you indicate we were using **cottonwoods** and it should say highbred **poplars**.

Response:

The suggested changes to the fact sheet were factual and were made.